Adventures in Aeronautics			
2009 Mathematics			
Core Curriculum			
Iowa Mathematics			
Grades 3-5			
Activity/Lesson	**State**	**Standards**	
Adventures in Aeronautics	IA	MA.3-5.1.1.1	Develop concepts of multiplication and division through the use of different representations (e.g. equal-sized groups, arrays, area models, and skip counting on number lines for multiplication, and successive subtraction, partitioning, and sharing for division).
Adventures in Aeronautics	IA	MA.3-5.1.1.2	Use commutative, associative, and distributive properties to develop strategies and generalizations to solve multiplication problems. These strategies will evolve from simple strategies (e.g. times 0, times 1, doubles, count by fives) to more sophisticated strategies, such as splitting the array.
Adventures in Aeronautics	IA	MA.3-5.1.1.5	Be able to make comparisons involving multiplication and division, using such words as "twice as many" or "half as many".
Adventures in Aeronautics	IA	MA.3-5.1.2.1	Extend their work with multiplication and division strategies to develop fluency and recall of multiplication and division facts.
Adventures in Aeronautics	IA	MA.3-5.1.2.2	Apply their understanding of models for multiplication (i.e. equal-sized groups, arrays, area models), place value, and properties of operations (in particular, the distributive property) as they develop, discuss, and use efficient, accurate, and generalizable methods to multiply multidigit whole numbers.
Adventures in Aeronautics	IA	MA.3-5.1.2.4	Develop fluency with efficient procedures for multiplying and dividing whole numbers and use them to solve problems.
Adventures in Aeronautics	IA	MA.3-5.1.3.1	Generalize patterns of multiplying and dividing whole numbers by 10, 100, and 1000 and develop understandings of relative size of numbers.
Adventures in Aeronautics	IA	MA.3-5.1.3.2	Be able to estimate sums and differences with whole numbers up to three digits.
Adventures in Aeronautics	IA	MA.3-5.1.3.4	Select and apply appropriate strategies (mental computation, number sense and estimation) for estimating products and quotients or determining reasonableness of results, depending on the context and numbers involved.
Adventures in Aeronautics	IA	MA.3-5.1.5.1	Use estimation in determining the relative sizes of number including amounts and distances, such as 500 is 5 flats or 5 x 100, or 500 is 1/2 of 1000.

Adventures in Aeronautics	IA	MA.3-5.2.1.1	Build a foundation using multiplicative contexts for later understanding of functional relationships with such statements as, "The number of legs is 4 times the number of chairs" or "A quarter is five times the value of a nickel."
Adventures in Aeronautics	IA	MA.3-5.2.2.1	Explore the commutative and associative properties through models and examples to determine which properties hold for multiplication and division facts and develop increasingly sophisticated strategies based on these properties and the distributive property to solve multiplication problems involving basic facts.
Adventures in Aeronautics	IA	MA.3-5.2.2.2	Use properties of addition and multiplication to multiply and divide whole numbers and understand why these algorithms work.
Adventures in Aeronautics	IA	MA.3-5.3.4.3	Explore methods for measuring the distance between two locations on the grid along horizontal and vertical lines.
Adventures in Aeronautics	IA	MA.3-5.3.5.4	Connect area measure to the area model that has been used to represent multiplication, and use this connection to justify the formula for the area of a rectangle.
Adventures in Aeronautics	IA	MA.3-5.3.6.5	Select and apply appropriate units, strategies and tools to solve problems that involve estimating and measuring weight, time and temperature.
Adventures in Aeronautics	IA	MA.3-5.3.7.2	Learn to use strategies involving multiplicative reasoning to estimate measurements (i.e. estimating their teacher‘s height to be one and a quarter times the student‘s own height).